

IN THE CLAIMS:

1 1-20. (CANCELLED)

1 | 21. (CURRENTLY AMENDED) The computer readable medium of claim ~~20~~ 24 wherein
2 the executable program instructions further comprise program instructions for:

3 monitoring each of the one or more access ports configured with rapid forwarding
4 for receipt of a configuration bridge protocol data unit (BPDU) message; and

5 in response to receiving a BPDU message at one of the access ports configured
6 with rapid forwarding, placing the respective access port in a blocking spanning tree port
7 state.

1 22. (ORIGINAL) The computer readable medium of claim 21 wherein

2 the intermediate network device has a memory, and

3 the configuration of ports as access ports with rapid forwarding is stored at the
4 memory.

1 23. (PREVIOUSLY PRESENTED) The computer readable medium of claim 21 wherein
2 the executable program instructions further comprise program instructions for placing
3 one or more other ports in a listening spanning tree port state, upon initialization of the
4 device.

1 24. (PREVIOUSLY PRESENTED) A computer readable medium containing executable
2 program instructions for use by an intermediate network device having a plurality of
3 ports for receiving and forwarding network messages, the executable program instruc-

4 tions comprising program instructions for:

5 configuring one or more ports as access ports;

6 configuring one or more access ports as rapid forwarding ports;

7 identifying all ports that have been configured as access ports with rapid forward-
8 ing; and

9 upon initialization of the device, placing each identified access port with rapid
10 forwarding directly to a forwarding spanning tree port state, without transitioning such
11 identified ports between any intermediary spanning tree port states, so that network mes-
12 sages may be received and forwarded by such identified ports immediately;

13 wherein each access port configured with rapid forwarding is placed in the for-
14 warding state prior to a physical layer link-up signal being received at the respective port.

1 | 25. (CURRENTLY AMENDED) The computer readable medium of claim ~~20~~ 24 wherein
2 the executable program instructions further comprise program instructions for generating
3 and issuing one or more configuration bridge protocol data unit (BPDU) messages from
4 each access port configured as rapid forwarding.

1 | 26. (CURRENTLY AMENDED) ~~The computer readable medium of claim 20~~ A com-
2 puter readable medium containing executable program instructions for use by an inter-
3 mediate network device having a plurality of ports for receiving and forwarding network
4 messages, the executable program instructions comprising program instructions for:

5 configuring one or more ports as access ports, wherein an access port is a port that
6 does not provide connectivity to switches or bridges coupled to other portions of a com-
7 puter network, but instead connects to a Local Area Network (LAN), a server or an end
8 station;

9 configuring one or more access ports as rapid forwarding ports;

10 identifying all ports that have been configured as access ports with rapid forward-
11 ing; and
12 upon initialization of the device, placing each identified access port with rapid
13 forwarding directly to a forwarding spanning tree port state, without transitioning such
14 identified ports between any intermediary spanning tree port states,
1 _____ wherein an end station is not coupled to a selected one of the access ports config-
2 ured with rapid forwarding until after the respective access port is placed in the forward-
3 ing spanning tree port state.

1 27. (PREVIOUSLY PRESENTED) The computer readable medium of claim 26 wherein
2 the executable program instructions further comprise program instructions for generating
3 and issuing one or more configuration bridge protocol data unit (BPDU) messages from
4 each access port configured as rapid forwarding.

1 28. (CANCELLED)

1 29. (CURRENTLY AMENDED) The method of claim ~~28~~ 32 further comprising:
2 monitoring each of the one or more access ports configured with rapid forwarding
3 port designation for receipt of a configuration bridge protocol data unit (BPDU) message;
4 and
5 in response to receiving a BPDU message at one of the access ports configured
6 with rapid forwarding designation, placing the respective access port in a blocking span-
7 ning tree port state.

1 30. (CANCELLED)

1 | 31. (CURRENTLY AMENDED) The method of claim-~~28~~32 further comprising:
2 | transitioning one or more other access ports that do not have rapid forwarding
3 | designation to a listening spanning tree port state, upon initialization of the device.

1 | 32. (CURRENTLY AMENDED) ~~The method of claim 28,~~ A method comprising:
2 | configuring one or more ports of a network device as access ports wherein an ac-
3 | cess port is a port that does not provide connectivity to switches or bridges coupled to
4 | other portions of a computer network, but instead connects to a Local Area Network
5 | (LAN), a server or an end station;
6 | configuring one or more access ports to have a rapid forwarding designation;
7 | identifying the ports that have been configured as access ports with rapid forward-
8 | ing designation; and
9 | upon initialization of the network device, placing each identified access port with
10 | rapid forwarding designation directly into a forwarding spanning tree port state, without
11 | transitioning such identified ports between any intermediary spanning tree port states,
12 | _____ wherein each access port configured with rapid forwarding designation is placed
13 | in the forwarding state prior to a link-up signal being received at the respective port.

1 | 33. (CURRENTLY AMENDED) The method of claim-~~28~~32 further comprising:
2 | issuing one or more configuration bridge protocol data unit (BPDU) messages
3 | from each access port configured to have rapid forwarding designation.

1 | 34. (CANCELLED)

1 | 35. (CURRENTLY AMENDED) The apparatus of claim-~~34~~38 wherein the enhanced

2 spanning tree entity is further operable to monitor each of the one or more access ports
3 configured with rapid forwarding port designation for receipt of a configuration bridge
4 protocol data unit (BPDU) message, and in response to receiving a BPDU message at one
5 of the access ports configured with rapid forwarding designation, to place the respective
6 access port in a blocking spanning tree port state.

1 36. (CANCELLED)

1 | 37. (CURRENTLY AMENDED) The apparatus of claim ~~34~~ 38 wherein the state ma-
2 chine engine is further operable to transition one or more other access ports that do not
3 have rapid forwarding designation to a listening spanning tree port state, upon initializa-
4 tion of the device.

1 | 38. (CURRENTLY AMENDED) ~~The apparatus of claim 34~~ An apparatus comprising:
2 a port configuration entity operable to maintain configuration data that indicates
3 one or more ports of the apparatus are access ports, wherein an access port is a port that
4 does not provide connectivity to switches or bridges coupled to other portions of a com-
5 puter network, but instead connects to a Local Area Network (LAN), a server or an end
6 station, the configuration data to also indicate that one or more of the access ports have a
7 rapid forwarding designation;
8 an enhanced spanning tree entity operable to query the port configuration entity
9 and to identify the ports that have been configured as access ports with rapid forwarding
10 designation; and
11 a state machine engine operable to place each identified access port with rapid
12 forwarding designation directly into a forwarding spanning tree port state, without transi-
13 tion of such identified ports between any intermediary spanning tree port states,
14 _____ wherein the state machine engine is operable to place each identified access port

15 with rapid forwarding designation into the forwarding spanning tree port state prior to a
16 physical layer link-up signal being received at the respective port.

1 | 39. (CURRENTLY AMENDED) The apparatus of claim-~~34~~38 wherein the state ma-
2 chine engine is operable to place each identified access port with rapid forwarding desig-
3 nation into the forwarding spanning tree port state while the respective port is uncoupled
4 from any end station.

1 40. (CANCELLED)

1 | 41. (CURRENTLY AMENDED) ~~The method of claim 28~~ An apparatus comprising:
2 means for configuring one or more ports of a network device as access ports,
3 wherein an access port is a port that does not provide connectivity to switches or bridges
4 coupled to other portions of a computer network, but instead connects to a Local Area
5 Network (LAN), a server or an end station;
6 means for configuring one or more access ports to have a rapid forwarding desig-
7 nation;
8 means for identifying the ports that have been configured as access ports with
9 rapid forwarding designation; and
10 means for placing each identified access port with rapid forwarding designation
11 directly into a forwarding spanning tree port state upon initialization of the device, with-
12 out transitioning such identified ports between any intermediary spanning tree port states,
13 _____ wherein an end station is not coupled to a selected one of the access ports config-
14 ured with rapid forwarding designation until after the respective access port is placed in
15 the forwarding spanning tree port state.

1 42. (CANCELLED)

1 43. (CURRENTLY AMENDED) ~~The apparatus of claim 42~~ An apparatus comprising:
2 a port configuration entity operable to maintain configuration data that indicates
3 one or more ports have been configured with a management protocol to have a rapid for-
4 warding designation;
5 an enhanced spanning tree entity operable to query the port configuration entity
6 and to identify the ports that have been configured with rapid forwarding designation;
7 and
8 a state machine engine operable to place each identified port with rapid forward-
9 ing designation directly into a forwarding spanning tree port state, without transition of
10 such identified ports between any intermediary spanning tree port states,
1 _____ wherein the state machine engine is operable to place each identified port with
2 rapid forwarding designation into the forwarding spanning tree port state prior to a physi-
3 cal layer link-up signal being received at the port.

1 44. (CURRENTLY AMENDED) ~~The method of claim 30~~ 46 further comprising:
2 monitoring each of the one or more access ports configured with rapid forwarding
3 port designation for receipt of a configuration bridge protocol data unit (BPDU) message;
4 and
5 in response to receiving a BPDU message at one of the access ports configured
6 with rapid forwarding designation, placing the respective access port in a blocking span-
7 ning tree port state.

1 45. (CURRENTLY AMENDED) ~~The method of claim 30~~ 46 further comprising:
2 transitioning one or more other access ports that do not have rapid forwarding

3 designation to a listening spanning tree port state, upon initialization of the device.

1 46. (CURRENTLY AMENDED) ~~The method of claim 30~~ A method comprising:
2 configuring one or more ports of a network device as access ports;
3 configure one or more access ports to have a rapid forwarding designation by se-
4 lecting with a management protocol, by a network administrator, the one or more access
5 ports to have rapid forwarding designation;
1 identifying the ports that have been configured as access ports with rapid forward-
2 ing designation; and
3 upon initialization of the network device, placing each identified access port with
4 rapid forwarding designation directly into a forwarding spanning tree port state, without
5 transitioning such identified ports between any intermediary spanning tree port states,
6 _____ wherein each access port configured with rapid forwarding designation is placed
7 in the forwarding state prior to a physical layer link-up signal being received at the re-
8 spective port.

1 47. (CURRENTLY AMENDED) ~~The method of claim 30~~ 46 further comprising:
2 issuing one or more configuration bridge protocol data unit (BPDU) messages
3 from each access port configured to have rapid forwarding designation.

1 48. (CURRENTLY AMENDED) ~~The apparatus of claim 36~~ 43 wherein the enhanced
2 spanning tree entity is further operable to monitor each of the one or more access ports
3 configured with rapid forwarding port designation for receipt of a configuration bridge
4 protocol data unit (BPDU) message, and in response to receiving a BPDU message at one
5 of the access ports configured with rapid forwarding designation, to place the respective
6 access port in a blocking spanning tree port state.

1 | 49. (CURRENTLY AMENDED) The apparatus of claim-~~36~~ 43 wherein the state ma-
2 | chine engine is further operable to transition one or more other access ports that do not
3 | have rapid forwarding designation to a listening spanning tree port state, upon initializa-
4 | tion of the device.

1 | 50. (CURRENTLY AMENDED) The apparatus of claim-~~36~~ 51 wherein the state ma-
2 | chine engine is operable to place each identified access port with rapid forwarding desig-
3 | nation into the forwarding spanning tree port state prior to a physical layer link-up signal
4 | being received at the respective port.

1 | 51. (CURRENTLY AMENDED) ~~The apparatus of claim 36~~ An apparatus comprising:
2 | a port configuration entity operable to maintain configuration data that indicates
3 | one or more ports have been configured with a management protocol to have a rapid for-
4 | warding designation;
5 | an enhanced spanning tree entity operable to query the port configuration entity
6 | and to identify the ports that have been configured with rapid forwarding designation;
7 | and
8 | a state machine engine operable to place each identified port with rapid forward-
9 | ing designation directly into a forwarding spanning tree port state, without transition of
10 | such identified ports between any intermediary spanning tree port states,
11 | _____ wherein the state machine engine is operable to place each identified access port
12 | with rapid forwarding designation into the forwarding spanning tree port state while the
13 | respective port is uncoupled from any end station.